(19) World Intellectual Property Organization International Bureau





(43) International Publication Date 3 January 2002 (03.01.2002)

PCT

(10) International Publication Number WO 02/01866 A3

(51) International Patent Classification?: H04N 5/76

(21) International Application Number: PCT/IL01/00568

(22) International Filing Date: 21 June 2001 (21.06.2001)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

| 60/214,129 | 26 June 2000 (26.06.2000) | US |
|------------|--------------------------------|----|
| 60/235,632 | 27 September 2000 (27.09.2000) | US |
| 60/249,513 | 17 November 2000 (17.11.2000) | US |
| 60/260,770 | 10 January 2001 (10.01.2001) | US |
| 60/263,705 | 24 January 2001 (24.01.2001) | US |
| | | |

(71) Applicant (for all designated States except US): NDS LIMITED [GB/GB]: One London Road, Staines, Middlesex TW18 4EX (GB).

(72) Inventors; and

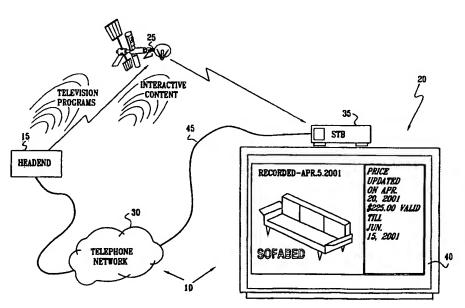
(75) Inventors/Applicants (for US only): TSURIA, Yossi [IL/IL]; c/o NDS Technologies Israel Ltd., P.O. Box

23012, 91235 Jerusalem (IL). WALD, Stephanie [IL/IL]; c/o NDS Technologies Israel Ltd., P.O. Box 23012, 91235 Jerusalem (IL). TIROSH, Gadi [IL/IL]; c/o NDS Technologies Israel Ltd., P.O. Box 23012, 91235 Jerusalem (IL). DARSHAN, Ezra [IL/IL]; c/o NDS Technologies Israel Ltd., P.O. Box 23012, 91235 Jerusalem (IL). RICHARDSON, David [IL/IL]; c/o NDS Technologies Israel Ltd., P.O. Box 23012, 91235 Jerusalem (IL). FINK, David [IL/IL]; c/o NDS Technologies Israel Ltd., P.O. Box 23012, 91235 Jerusalem (IL). SHLISSEL, Moshe [IL/IL]; c/o NDS Technologies Israel Ltd., P.O. Box 23012, 91235 Jerusalem (IL). VINOKUROV, Menachem [IL/IL]; c/o NDS Technologies Israel Ltd., P.O. Box 23012, 91235 Jerusalem (IL). WACHTFOGEL, Reuven [IL/IL]; c/o NDS Technologies Israel Ltd., P.O. Box 23012, 91235 Jerusalem (IL). JACOBS, Eli [IL/IL]; c/o NDS Technologies Israel Ltd., P.O. Box 23012, 91235 Jerusalem (IL). COHEN, Einat [IL/IL]; c/o NDS Technologies Israel Ltd., P.O. Box 23012, 91235 Jerusalem (IL), BASTABLE, Ian [GB/GB]; c/o NDS Limited, One London Road, Staines, Middlesex TW18 4EX (GB).

(74) Agents: COLB, Sanford, T. et al.; Sanford T. Colb & Co., P.O. Box 2273, 76122 Rehovot (IL).

[Continued on next page]

(54) Title: TIME SHIFTED INTERACTIVE TELEVISION



(57) Abstract: Methods and apparatus for managing, implementing and using interactive applications and content that are digitally recorded and viewed in real-time and/or a time-shifted mode are provided. The interactive applications may be associated with television programs or may be unrelated thereto, and may be transmitted together with television programs or separately therefrom. Interactive applications that are employed in a time-shifted mode can be matched to current conditions and interactive content may be updated to include current data. Users may view and manipulate highlights of television programs and receive alerts of occurrence of real-time events during viewing of recorded material. Additional manipulations of interactive applications and content are also enabled. Related apparatus and methods are also described.

O 02/01866 A3



- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE,

IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- entirely in electronic form (except for this front page) and available upon request from the International Bureau
- (88) Date of publication of the international search report: 10 May 2002

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

*ional Application No PCI/IL 01/00568

A. CLASSIFICATION OF SUBJECT MATTER IPC 7 H04N5/76

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

| 1,15,22, |
|--|
| 28,32, 34,41, 44,54, 55,63, 65,76-99 |
| |
| 1,15,22, 28,32, 34,41, 44,54, 55,63, 65,76-99 |
| |
| |

| X Further documents are listed in the continuation of box C. | X Patent family members are listed in annex. | | | |
|--|---|--|--|--|
| Special categories of cited documents: A* document defining the general state of the art which is not considered to be of particular relevance E* earlier document but published on or after the international filing date L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) O* document referring to an oral disclosure, use, exhibition or other means P* document published prior to the international filing date but later than the priority date claimed | *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. *&* document member of the same patent family | | | |
| Date of the actual completion of the international search 31 January 2002 | Date of mailing of the International search report 07/02/2002 | | | |
| Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rliswijk | Authorized officer | | | |
| Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016 | Verleye, J | | | |

INTERNATIONAL SEARCH REPORT

inte *ional Application No PC1/IL 01/00568

| | ÷ 0 | PCI/IL 01/00568 | | |
|------------|--|--|--|--|
| C.(Continu | ation) DOCUMENTS CONSIDERED TO BE RELEVANT | | | |
| Category ° | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. | | |
| P,A | WO 01 33847 A (OPENTV, CORP.) 10 May 2001 (2001-05-10) | 1,15,22, 28,32, 34,41, 44,54, 55,63, 65,76-99 | | |
| | the whole document | | | |
| P,A | WO 01 11865 A (BRITISH SKY BROADCASTING LIMITED) 15 February 2001 (2001-02-15) | 1,15,22, 28,32, 34,41, 44,54, 55,63, 65,76-99 | | |
| | the whole document | | | |
| | 333 | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | ļ | | |

INTERNATIONAL SEARCH REPORT

aformation on patent family members

Inte 'lonal Application No
PC1/IL 01/00568

| Patent document cited in search report | | Publication date | | Patent family member(s) | Publication date |
|---|---|------------------|----------------|---------------------------------------|--|
| GB 2328825 | Α | 03-03-1999 | KR | 254051 B1 | 15-04-2000 |
| WO 0010327 | A | 24-02-2000 | AU EP WO | 9549298 A 1099338 A1 0010327 A1 | 06-03-2000 16-05-2001 24-02-2000 |
| WO 0133847 | Α | 10-05-2001 | AU WO | 1252601 A 0133847 A1 | 14-05-2001 10-05-2001 |
| WO 0111865 | Α | 15-02-2001 | AU WO | 6307600 A 0111865 A1 | 05-03-2001 15-02-2001 |